

DETAILED ACTION

Claim Objections

1. Claim 16 is objected to because of the following informalities: Replace line 2 with "the production manager controller outputs job coordination information further ~~comprise~~ comprising:". Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
3. Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
4. Claim 6 recites the limitation "the production monitor controller output" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2625

6. Claims 1-6, 15-19, 22-24, 33 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Webster Patent 5,617,215, in further view of DeHority Patent 5,129,639 and Allen Patent 6,549,299.

Referring to **claim 1**, Webster '215 discloses an integrated and digital production and finishing system for producing and finishing work pieces of a job, comprising:

a) a production device for producing the work pieces of the job (col. 5, lines 52-58, marker machine module);

b) a finishing device for finishing the output of the production device, such finishing device being controlled separately from the production device and having at least one constraint (col. 9, lines 13-23, machine modules describe themselves in terms of capabilities and constraints);

c) a production monitor controller that receives the at least one constraint from the finishing device and outputs job coordination, based at least in part upon constraints of the finishing device (col. 9, lines 1-12, scheduler 96 of Fig. 7 takes in jobs represented as assembly trees and maps them onto the machine modules);and

d) a finishing module coordinator that identifies each device necessary for completion of the job; determines if each needed device is available; and controls, directs and tracks the operation of the finishing device (col. 9, lines 1-12, scheduler 96 of Fig. 7 takes in jobs represented as assembly trees and finds the optimal sequence of operations to produce the job).

Webster '215 does not disclose expressly presenting a user with optimization recommendations.

DeHority '639 discloses outputting optimization information, wherein a controller presents a user with optimization recommendations (66 of Fig. 2B, col. 4, lines 20-32, if a mismatch does occur the printer operator is notified of the characteristics of the mismatch and given an opportunity to change the printer characteristics).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to present a user with optimization information. The motivation for doing so would have been to allow a user to indicate the closest match to print job requirements rather than rejecting the job completely.

Webster '215 does not disclose expressly a separate finishing module coordinator that receives job coordination information output from the production monitor controller.

Allen '299 discloses a finishing module coordinator (control logic of Fig. 3, col. 4, lines 29-61) that receives job coordination information output from the production monitor controller (computer 12 of Fig. 1, col. 3, lines 17-26, instructions indicate various things about the tasks that are to be performed by the finishing machines).

At the time of the invention, it would have obvious to a person of ordinary skill in the art to receive job coordination information at a separate finishing module coordinator. The motivation for doing so would have been to allow using less expensive standalone finishing machines. Therefore, it would have been obvious to combine DeHority '639 and Allen '299 with Webster '215 to obtain the invention as specified in claim 1.

Referring to **claim 2**, Webster '215 discloses wherein the production device comprises a printing device and wherein the job is a print job. (col. 3, lines 62-67, printing apparatus prints a images).

Referring to **claim 3**, Webster '215 discloses wherein the finishing device performs packaging operations (col. 10, lines 9-11, machine modules are capable of binding).

Referring to **claims 4 and 22**, Webster '215 discloses wherein the production monitor controller outputs job coordination information comprising identity of job segments determined at least in part upon constraints of the finishing device (col. 6, lines 47-67, page level control 84 provides the scheduling of a page of an assembly tree).

Referring to **claims 5 and 23**, Webster '215 discloses wherein the production monitor controller outputs at least a portion of finishing job segment information prior to production of at least a portion of the job by the production device (col. 7-8, lines 53-67, 1-4, Mark Facility Controller is capable of stream printing before the entire assembly tree has been received).

Referring to **claims 6 and 24**, Webster '215 discloses job segments, but does not disclose expressly a job segment identifier.

Allen '299 discloses a job segment identifier uniquely associated with each identified job segment (col. 3, lines 54-61, barcode 38 of Fig. 2 on instruction sheet 30 includes instructions relating to the finishing job).

Art Unit: 2625

At the time of the invention, it would have obvious to a person of ordinary skill in the art to utilize an identifier for a job segment. The motivation for doing so would have been to allow using less expensive standalone finishing machines of Allen '299. Therefore, it would have been obvious to combine Allen '29 with Webster '215 to obtain the invention as specified in claim 6.

Referring to **claims 15 and 33**, Webster '215 discloses wherein the production manager controller outputs job coordination information comprising:

- a) identification of different job segments for differing operations of the job,
- b) instructions of production of each production job segment; and
- c) instructions for finishing each finishing job segment (col. 6, lines 47-67, page level control 84 provides the scheduling of a page of an assembly tree).

. Referring to **claims 16 and 34**, Webster '215 discloses wherein the production manager controller outputs further comprise:

- a) integrity descriptors for use by the finishing module coordinator (col. 7, lines 19-34, the Mark Facility Controller provides estimations of time to complete job).

Webster '215 does not disclose expressly job tickets.

Allen '299 discloses b) at least one virtual print job ticket (col. 3, lines 27-43, print and finishing instructions are provided for the job ticket); and

- c) at least one virtual finishing job ticket (col. 3, lines 27-43, print and finishing instructions are provided for the job ticket [more than one ticket may be created]).

At the time of the invention, it would have obvious to a person of ordinary skill in the art to utilize print and finishing job tickets. The motivation for doing so would have

been to allow using less expensive standalone finishing machines of Allen '299.

Therefore, it would have been obvious to combine Allen '29 with Webster '215 to obtain the invention as specified in claim 16.

Referring to **claim 17**, Webster '215 discloses a plurality of finishing devices and a plurality of production devices (col. 9, lines 13-23, machine modules describe themselves in terms of capabilities and constraints) wherein a plurality of finishing devices are controlled separately from each of the production devices (col. 9, lines 56-65, finishers are completely independent).

Referring to **claim 18**, Webster '215 discloses wherein the finishing module coordinator directs operation of at least one finishing device, but does not disclose expressly using human readable instructions.

Allen '299 discloses wherein the finishing module coordinator directs operation of at least one finishing device by providing human readable instructions to human operators (col. 3, lines 28-43, human-readable instructions are provided on instruction sheet 30).

At the time of the invention, it would have obvious to a person of ordinary skill in the art to provide human readable instruction for controlling the finishing device. The motivation for doing so would have been to allow using less expensive standalone finishing machines of Allen '299. Therefore, it would have been obvious to combine Allen '29 with Webster '215 to obtain the invention as specified in claim 17.

Referring to **claim 19**, Webster '215 discloses wherein at least some of the functions of the finishing module coordinator are performed within the same apparatus

Art Unit: 2625

as the production manager controller device (col. 9, lines 1-12, Mark Faculty Controller 74 with scheduler 96 of Fig. 7 takes in jobs represented as assembly trees and maps them onto the machine modules).

Referring to **claim 21**, Webster '215 discloses an integrated and digital method for coordinating the printing and finishing of a print job, comprising:

a) printing job segments using a printing device having at least one constraint (col. 5, lines 52-58, marker machine module);

b) finishing the printed job segments using a printing device that is controlled separately from the printing device and having at least one constraint (col. 9, lines 13-23, machine modules describe themselves in terms of capabilities and constraints);

c) outputting job coordination information from a production monitor controller, such job coordination information being based at least in part upon the constraints of the finishing device (col. 9, lines 1-12, scheduler 96 of Fig. 7 takes in jobs represented as assembly trees and maps them onto the machine modules); and

d) directing, controlling and tracking the operation of the finishing device by a finishing module coordinator after such finishing module coordinator identifies each device necessary for completion of the job and determines if each needed device is available (col. 9, lines 1-12, scheduler 96 of Fig. 7 takes in jobs represented as assembly trees and finds the optimal sequence of operations to produce the job).

Webster '215 does not disclose expressly presenting a user with optimization recommendations.

DeHority '639 discloses outputting optimization information, wherein a controller presents a user with optimization recommendations (66 of Fig. 2B, col. 4, lines 20-32, if a mismatch does occur the printer operator is notified of the characteristics of the mismatch and given an opportunity to change the printer characteristics).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to present a user with optimization information. The motivation for doing so would have been to allow a user to indicate the closest match to print job requirements rather than rejecting the job completely.

Webster '215 does not disclose expressly a separate finishing module coordinator that receives job coordination information output from the production monitor controller.

Allen '299 discloses a finishing module coordinator (control logic of Fig. 3, col. 4, lines 29-61) that receives job coordination information output from the production monitor controller (computer 12 of Fig. 1, col. 3, lines 17-26, instructions indicate various things about the tasks that are to be performed by the finishing machines).

At the time of the invention, it would have obvious to a person of ordinary skill in the art to receive job coordination information at a separate finishing module coordinator. The motivation for doing so would have been to allow using less expensive standalone finishing machines. Therefore, it would have been obvious to combine DeHority '639 and Allen '299 with Webster '215 to obtain the invention as specified in claim 21.

7. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Webster Patent 5,617,215, in further view of Allen Patent 6,549,299.

Referring to **claim 20**, Webster '215 discloses a digital system for integrating and controlling assembler/finishing processes, comprising:

a) a production monitor controller capable of separating a production job into job segments based upon the capabilities and constraints of devices to be used in the production process (col. 9, lines 1-12, scheduler 96 of Fig. 7 takes in jobs represented as assembly trees and maps them onto the machine modules);

b) at least one database for storing information concerning the capabilities and constraints of devices to be used in the production process and for storing job segment descriptions (col. 8, lines 16-20, constraint store 110 of Fig. 7 stores machine module capabilities and constraints);

c) a finishing module coordinator, in communication with assembler/finisher devices and with at least one database, for control, tracking, and integrity functions of job segments during the production process (col. 9, lines 1-12, scheduler 96 of Fig. 7 takes in jobs represented as assembly trees and finds the optimal sequence of operations to produce the job).

Webster '215 does not disclose expressly a separate finishing module coordinator and production monitor controller.

Allen '299 discloses a finishing module coordinator (control logic of Fig. 3, col. 4, lines 29-61) that receives job coordination information output from the production

Art Unit: 2625

monitor controller (computer 12 of Fig. 1, col. 3, lines 17-26, instructions indicate various things about the tasks that are to be performed by the finishing machines).

At the time of the invention, it would have obvious to a person of ordinary skill in the art to receive job coordination information at a separate finishing module coordinator. The motivation for doing so would have been to allow using less expensive standalone finishing machines. Therefore, it would have been obvious to combine DeHority '639 and Allen '299 with Webster '215 to obtain the invention as specified in claim 20.

8. Claims 7, 8, 14, 25, 26 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Webster Patent 5,617,215, DeHority Patent 5,129,639 and Allen Patent 6,549,299 as applied to claims 1 and 21 above, and further in view of Hower Patent.5,467,434.

Referring to **claims 7 and 25**, Webster '215 discloses the finishing module, but does not disclose expressly receiving job coordination information from a virtual finishing job ticket database.

Allen '299 discloses a finishing module coordinator (control logic of Fig. 3, col. 4, lines 29-61) that receives job coordination information output from the production monitor controller (computer 12 of Fig. 1, col. 3, lines 17-26, instructions indicate various things about the tasks that are to be performed by the finishing machines).

Hower '434 discloses a virtual finishing job ticket database that outputs job coordination information (col. 4, lines 41-48, print queue 42 of Fig. 2 may be for a virtual printer).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to utilize a virtual finishing job ticket database. The motivation for doing so would have been to queue print finishing jobs so additional jobs can be handled while one job is currently being processed. Therefore, it would have been obvious to combine Hower '434 with Webster '215 to obtain the invention as specified in claim 7.

Referring to **claims 8 and 26**, Webster '215 discloses wherein the production monitor controller outputs job coordination information comprising:

a) identity of at least one job segment determined at least in part upon constraints of the finishing device (col. 6, lines 47-67, page level control 84 provides the scheduling of a page of an assembly tree).

Webster '215 does not disclose expressly a job segment identifier.

Allen '299 discloses b) a job segment identifier uniquely associated with job coordination information pertaining to the job segment (col. 3, lines 54-61, barcode 38 of Fig. 2 on instruction sheet 30 includes instructions relating to the finishing job).

At the time of the invention, it would have obvious to a person of ordinary skill in the art to utilize an identifier for a job segment. The motivation for doing so would have been to allow using less expensive standalone finishing machines of Allen '299.

Hower '434 discloses wherein the virtual finishing job ticket database stores a copy of the job ticket (col. 4, lines 41-48, print queue 42 of Fig. 2 may be for a virtual printer).

Referring to **claims 14 and 32**, Webster '215 discloses wherein the production monitor controller outputs a finishing job (col. 9, lines 1-12, scheduler 96 of Fig. 7 takes in jobs represented as assembly trees and maps them onto the machine modules).

Hower '434 discloses storing a copy of the job ticket in the virtual finishing job ticket database (col. 4, lines 41-48, print queue 42 of Fig. 2 may be for a virtual printer).

9. Claims 9-13 and 27-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Webster Patent 5,617,215, DeHority Patent 5,129,639, Allen Patent 6,549,299 and Hower Patent 5,467,434 as applied to claims 8 and 26 above, and further in view of Neilsen Patent 6,639,687.

Referring to **claims 9 and 27**, Hower '434 discloses job coordination information stored in the virtual finishing job ticket database (print queue 42 of Fig. 2, col. 4, lines 41-48).

Webster '215 discloses a job segment, but does not disclose expressly a job segment identifier code that forms a vector.

Neilsen '687 discloses a job segment identifier code that is physically associated with a job segment wherein such job segment identifier code forms a vector to job coordination information, and pertaining to the job segment to which the job segment

Art Unit: 2625

identifier code is physically associated (col. 6, lines 45-58, pointer to a print job ticket object includes the component files and print attributes of the print job).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to associate a pointer with a job segment identifier. The motivation for doing so would have been to not have to include actual data but refer to the data stored elsewhere so as to reduce the amount of memory needed. Therefore, it would have been obvious to combine Neilsen '687 with Webster '215 to obtain the invention as specified in claim 9.

Referring to **claims 10 and 28**, Neilsen '687 discloses wherein the job segment identifier code comprises recognizable text (col. 6, lines 45-58, "pJob" is a pointer to a print job ticket object).

Allen '299 discloses printing the job segment identifier on a sheet located on the job segment (col. 3, lines 54-61, barcode 38 of Fig. 2 on instruction sheet 30 includes instructions relating to the finishing job).

Referring to **claims 11 and 29**, Allen '299 discloses a job segment identifier sheet (col. 3, lines 17-27, instruction sheet 30 of Fig. 2 contains the finishing instructions regarding the document to be assembled).

Neilsen '687 discloses the job segment identifier code (col. 6, lines 45-58, pointer to a print job ticket object includes the component files and print attributes of the print job).

Referring to **claims 12 and 30**, Allen '299 discloses wherein the job segment identifier sheet contains job coordination information pertaining to the job segment that

Art Unit: 2625

was outputted from the production manager controller (col. 3, lines 17-27, instruction sheet 30 of Fig. 2 contains the finishing instructions regarding the document to be assembled).

Hower '434 discloses storing the job ticket in the virtual finishing job ticket database (print queue 42 of Fig. 2, col. 4, lines 41-48).

Referring to **claims 13 and 31**, Allen '299 discloses a virtual finishing job ticket reader for reading information from the job segment identifier sheet (barcode reader 44 of Fig. 3, col. 4, lines 54-61).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter K. Huntsinger whose telephone number is (571)272-7435. The examiner can normally be reached on 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Moore can be reached on (571)-272-7437. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2625

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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